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09/694,502

10/24/2000

Kazumi Kimura

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05/28/2004

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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 05/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/694,502

Applicant(s)

KIMURA, KAZUMI

Examiner

Hai C Pham

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-13 and 16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/25/01, 06/05/02, & 07/31/02
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-8 and 15, drawn to a synchronous detection lens, classified in class 347, subclass 250.
 - II. Claims 9-13 and 16, drawn to registration detection of color images, classified in class 347, subclass 116.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the optical element for synchronous detection for directing the deflected beam to a sensor for determining the timing of the image writing in the main scanning direction as claimed in the base claim 1 of Group I is tailored to a single scanning optical apparatus for forming monochromatic image. The subcombination has separate utility such as the registration detecting means for detecting a positional deviation of a marking or markings produced on the transfer web to reduce an absolute registration deviation in the sub-scanning direction in

each of a plurality scanning optical apparatuses or the relative registration deviation in the sub-scanning direction among the colors such that the different developed color images are superposed with each other on the transfer web.

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

6. During a telephone conversation with Attorney Michael O'Neil on May 23, 2004 a provisional election was made with traverse to prosecute the invention of Group II, claims 9-113 and 16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-8 and 15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Priority

7. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

8. Figure 6 should be designated by a legend such as --PRIOR ART-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 9-13 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagi et al. (U.S. 5,115,256) in view of Kato (U.S. 5,963,356).

Miyagi et al., an acknowledged prior art, discloses a color image forming apparatus for scanning a beam from at least one scanning optical apparatus (49C, 49M, 49Y and 49BK) on a corresponding one of a plurality of image bearing members (1C, 1M, 1Y and 1BK) to thereby form a color image, each of the scanning optical apparatuses comprising a light source (63C), a deflecting element (polygon mirror 62) for deflecting and scanning a beam emitted from said light source, a scanning optical element (scanning lens 65) for imaging said deflected beam into a spot shape on the scanned surfaces of said image bearing members, a sensor (BD sensor 8C) to take the timing of image writing beginning, and registration detecting means (sensors 22L and

22R) for detecting the positional deviation of a marking (32C_L and 32C_R) of a predetermined shape formed on each of said image bearing members by each scanning optical apparatus is provided at a position corresponding to an image height separate from the optical axis of said scanning optical element.

However, Miyagi et al. fails to teach the optical element for synchronous detection for directing the deflected beam from said deflecting element to the BD sensor.

Kato discloses a scanning optical apparatus comprising a BD sensor (9) as a detection element for obtaining a synchronizing signal of image writing start position on the surface of the photosensitive drum, a BD lens (42) for directing the beam deflected from the polygon mirror (5) onto the BD sensor, and an auxiliary BD lens (92) for correcting any deviation of the BD beam in the sub-scanning direction.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate a synchronous detection lens as taught by Kato in the device of Miyagi et al. The motivation for doing so would have been to allow the deflected laser beam to be focused on and detected by the BD sensor.

Miyagi et al. further teaches:

- With regard to claim 10, two registration sensors (22L and 22R) disposed so as to be capable of detecting a plurality of image heights substantially symmetrical with respect to the optical axis of said scanning optical element (a pair of left and right registration marks 32C_L and 32C_R being detected by the respective registration sensors),

- With regard to claim 11, correcting means for reducing absolute registration deviation in each scanning optical apparatus or registration deviation relative to the scanning optical apparatus providing the reference, in conformity with the output of said registration detecting means (col. 8, lines 38-63),
- with respect to claims 12-13, the correcting means including a top registration difference calculating section (21) for averaging the outputs of the two registration sensors (22L and 22R) such that the deviations in the top lines on the respective photosensitive drums scanned by the respective laser beams can be set to a minimum (col. 9, lines 31-62).

11. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyagi et al. in view of Kato, as applied to claim 9 above, and further in view of Maekawa (U.S. 5,889,594).

Miyagi et al., as modified by Kato, discloses all the basic limitations of the claimed invention including an image input for receiving the image signals from an external device based on which the respective laser beams are modulated, but fails to explicitly disclose the printer controller for converting code image data.

However, it is old and well known in the art that the device for converting the code data into image signal used to modulate the laser beam is part of the input interface of any printer, as evidenced by Maekawa, which discloses a printer controller unit (103) (Fig. 3) including an interface unit (306) for receiving an input data signal from

an external device and an image data generating unit (303) for converting the received input code data into image data for an actual printing (col. 3, line 58 to col. 4, line 17).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the printer controller in the modified device of Miyagi et al. since Maekawa teaches this to be known in the art to provide a printer controller including the input interface unit and the image data generating unit such that the external code data can be converted into a usable data for modulating the laser beam of the laser printer.

Contact information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Pham

HAI PHAM
PRIMARY EXAMINER

May 26, 2004